U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20590

STATEMENT OF JAMES M. BEGGS, UNDER SECRETARY, DEPARTMENT OF TRANSPORTATION, BEFORE THE SUBCOMMITTEE ON ADVANCED RESEARCH AND TECHNOLOGY, HOUSE COMMITTEE ON SCIENCE AND ASTRONAUTICS, REGARDING AERONAUTICAL RESEARCH AND DEVELOPMENT, TUESDAY JANUARY 18, 1972.

Mr. Chairman and Members of the Committee:

I appreciate this opportunity to appear before you today to discuss the policies and programs of the Department in the field of aeronautical research and development.

On September 8, 1971, the Department of Transportation sent to the Congress the Department's first "Statement on National Transportation Policy." At that time Secretary Volpe emphasized that the Statement set forth the principles of a national transportation policy which we will use in formulating specific policy recommendations in the months and years ahead. Those principles, he said, will be widely debated and some sort of consensus will emerge; only with such broad agreement will we be able to achieve the strong transportation system that our Nation needs.

The Policy Statement addressed the array of problems facing transportation and delineated a number of essential policy objectives. The overall objectives can be summarized as the furtherance of economic efficiency and safety; the minimization of adverse environmental effects of transportation; the support of other national interests, including

national defense, economic growth, social development, and the advancement of scientific research; and the facilitation of the process of local determination by fostering greater participation of citizens and elected public officials in the decisions affecting transportation.

The challenge to the transportation system and to those who plan and run it lies in prudently balancing and trading off among the transportation modes and the objectives we seek to promote without damaging our land, our environment or our social fabric.

The DOT, as one of its important responsibilities, provides strong support for air transportation as part of a general policy to encourage each transportation mode to develop in line with its particular advantages for meeting the needs of the users of transportation. I should add at this point that we now have membership on the National Aeronautics and Space Council, and remain mindful in the conduct of our activities in the field of aviation of the responsibilities of the Council under the National Aeronautics and Space Act and of the valuable opportunity that this Council relationship offers for the coordination of our programs with the efforts of the other member groups. To improve awareness of these responsibilities at staff levels we have formed the joint DOT/NASA/NASC civil aeronautics policy and program review group mentioned by Mr. Anders.

From the early years of powered flight, the Federal Government has recognized the need to maintain a policy supporting and encouraging the

growth of civil aviation. Initially this policy was based on the contribution of civil aviation to military preparedness. Later the requirements for public safety were considered, and still later the role of civil aviation as a public service was more fully recognized. The Government implemented these policies in many ways. The airline industry has been given regulatory protection in the fields of fares and market entry and exit. Since the establishment of the regulation system in 1938, the Government has paid direct subsidies of more than $1.6 billion to airlines. The interstate character of air travel was recognized at an early stage, and thus the Federal Government assumed responsibility for operation of the Nation's airways and for regulation of certain operational aspects of airports. The FAA operations budget authority for these purposes has totaled about $7 billion in the last 10 years. (Three billion or 43 percent of that total was in the budgets for the last three years.) In a comparable period, the aircraft manufacturing industry spent over $3.5 billion for civil aviation research and development, while the Government added another $2 billion in support.

Clearly past Federal policies and programs have had a significant effect on aviation, just as they have on other transportation modes. As a result, civil aviation has experienced impressive growth especially during the 25 years since World War II. Today, civil aviation is the dominant mode of inter-city, public transport, serving almost twice the passengers and representing about four times the passenger miles

of the combination of all other modes -- rail, bus, and water. Of course, the long haul air travel market dominates these statistics.

The products of research and development have been major contributors to this growth. Increased airline productivity can be directly correlated with increases in the level of R&D expenditure. Research and development have produced increases in aircraft speed, capacity, and range. Since World War II, aircraft productivity has thus been increased by a factor of 20 while direct operating costs have been reduced by a factor of 3. Both the industry and the public have been quick to take advantage of these improvements. In the same period, revenue passenger-miles increased by a factor of about 30, revenue ton-miles by a factor of about 50, aircraft handled by the airways system by a factor of about 8, and the general aviation fleet by a factor of about 4.

Today, civil aviation has a major influence on the way of life in the United States. Only the automobile is more important to the mobility of the population. Air travel is accepted and used by almost all economic levels.

The improvements in productivity, reliability, and safety created by research and development and the wide acceptance by the public of the resulting service have produced a host of benefits to the user and to the Nation. Some of these benefits can be measured in savings to the

user; for example, improvements in air travel in the 20 years preceding 1968 resulted in passenger time savings totaling about 1 billion man hours, passenger fare savings of over $8 billion, and cargo tariff savings of over $1 billion (constant 1968 dollars). Advances in safety have resulted in substantial reductions in accident rates for commercial aircraft over the past 20 years.

Other benefits accrue to the Nation as a whole. Even with the current decline, the total employment in civilian aerospace and airlines is about 740,000. In 1969, civil aerospace was the third largest manufacturing employer behind the motor vehicle and steel industries. Civil aviation's total contribution to the GNP in 1969 was about $10 billion and over the past 10 years it has grown about three times as fast as the total economy. The net contribution to the U.S. balance of trade by the civil aviation manufacturing industry was $1.77 billion in 1969 -- more than the Nation's entire favorable balance that year.

As a result of the Government's supportive policies, the contributions of research and development, and the domestic success of civil aviation, the United States currently enjoys a well-recognized, but challenged position of world leadership. The magnitude and scope of this leadership can be measured in many ways. The seven largest free-world airlines (in terms of passenger-miles flown) are U.S. carriers. Over half the free-world passenger-miles are flown by U.S. carriers. Three-fourths of the free-world commercial aircraft are of U.S. manufacture.

The United States exports over 2-1/2 times as many general aviation aircraft as the rest of the world.

The importance of this leadership and the need to maintain it are of serious concern to the Administration. We must recognize the mounting strength and activity of other nations in this field. This is true in the case of the development of supersonic aircraft where we have ground to a halt. The Congress has spoken in that particular field, of course, but we still experience feelings of regret over the dismantlement of our own SST program.

Our overall statistics in aviation activity are impressive but they serve only to confirm what most people already recognize: the Government has supported and fostered civil aviation; civil aviation has responded with impressive growth and has achieved widespread acceptance; in return, the user, the public, and the Nation have received a variety of benefits.

The growth pattern of the past 25 years is not likely to be duplicated in the future. Aviation has come of age, and while growth can be expected to continue, it will not be the same as we experienced since World War II. Civil aviation will encounter new challenges, and the public environment it will face will be different than it has been for several decades. Further growth in civil aviation and in the benefits it provides to the Nation will require the recognition of changing attitudes and the establishment of new priorities. The years around 1970 represent an important transition period.

A few years ago it was a popular pastime to visit airports and to watch aircraft operations. Today, as a result of noise, pollution, and ground congestion, airports are considered bad neighbors and their growth is often opposed. A few years ago, an air trip was regarded as an adventure. Today air travel is regarded as routine, and congestion, delays, and other inconveniences often result in disgruntled and irate passengers. A very few years ago, the airlines and aerospace industry were profitable and experiencing rapid growth. Now, however, circumstances which led to the boom of 1968 are no longer with us, and profits and employment are being reduced. The Administration's economic and technical programs, however, are aimed at alleviating this problem. I would point to the expansion over the last three years of our own aviation R&D budget, as an example. Not counting SST funding, we have risen from an obligation level of $46 million in 1969, to $87 million in 1972, and while I am not at liberty to discuss budget figures for 1973, I can say that we are pleased with the overall program for 1973.

These examples serve to emphasize the present problems of civil aviation that could become more severe in the future if additional actions are not taken in both the technical and economic areas. The importance of each of these problems depends on the viewpoint of the observer.

To the general public, deeply concerned with the environment, the major problem is aircraft noise. This is still the case, even though environmental protection considerations have been clearly reflected in recent transportation policy actions. Perhaps increases in the portion

of our recent R&D budget devoted to noise abatement are the best example of this. Over the past three years we have budgeted $9.6 million in this area. Other important actions in this regard have been the establishment of procedures for developing and reviewing the environmental impact statements required under the National Environmental Policy Act and the establishment of aircraft type certification standards prescribing allowable engine noise levels.

The aircraft manufacturers have also put forward significant efforts dealing with the noise problem. For example, the latest version of Boeing's 747 is over 2-1/2 times larger than its earlier 707 aircraft, with about 2-1/2 times the thrust. Despite its increased size, the 747 is substantially quieter, with a takeoff noise level of 107.7 effective perceived noise decibels (EPNdB), as compared with 118 EPNdB for a 707 at takeoff. This amounts to a reduction in the annoyance at takeoff of one half. In the area of pollution, an industry-government agreement was reached in 1970 to incorporate smoke-free combustors in most airline two- and three-engine aircraft in domestic service.

To the user, concerned with service, delays caused by terminal congestion are important. For example, the cost to passengers of airborne delays has been estimated at about $100 million in 1969. The costs to carriers from aircraft terminal-area delays due to congestion have been estimated at over $150 million. Without corrective action, these costs could grow to about $400 million and about $600 million, respectively in 1980. The cost of ground access congestion to the passenger

could be even greater. In addition, idling aircraft lined up on the ground contribute many times the amount of pollution than they do in flight.

The Administration has recognized that there are critical deficiencies in airport facilities and the air traffic control system. This recognition resulted in our submission in 1969 of a legislative proposal upon which the Airport and Airway Development and Revenue Acts of 1970 were based. These Acts contemplate the infusion during the decade of the 1970's of $5 billion in Federal funds into the improvement of airports and the modernization of the air navigation and traffic control system. The Revenue Act extended the concept of a trust fund financed by user charges to the financing of Federal aviation expenditures, a step designed to lighten the burden on the general taxpayer and to ensure a more efficient allocation of our transportation resources.

To the operators concerned with finances, the losses due to congestion are only part of the problem. They are also confronted with other operating losses, especially those related to the short-haul market. This market is a major contributor to airline industry losses which were over $150 million in 1970. Because of the potential for growth in the short-haul market, improved short-haul economics may be very important to the future of civil aviation. Not only is the potential short-haul market large, but the possibilities for short-haul service of civil aviation to make a contribution to our society and to our way of life

are also great. Civil aviation can beneficially affect regional development, population distribution, and land use, and can contribute to other social and economic goals. Considering the country's future growth, safe and efficient short-haul public transportation should become increasingly important.

The manufacturing side of the industry is also having severe financial problems. The research, development, and initiation of production for modern transport aircraft require a peak commitment on the order of $1 billion, several times the net worth of the producing company. Production runs of several hundred aircraft are required to reach the break-even point. If the market for these aircraft falters, as is presently the case, serious financial problems are created for the aerospace industry.

The problem could become more serious. Foreign competition could make severe inroads into the U.S. leadership position. France, England, Japan, USSR, West Germany and Italy are all seeking increased shares of the expanding aircraft market and are developing, through their nationalized manufacturing industries, a variety of aircraft, such as the Concorde supersonic transport and the airbus, with which to challenge U.S. leadership. Among the factors which are contributing to the improved position of competitor nations is their formation of consortia for the manufacture of aircraft, as in the case of the British and French arrangement for the development of the Concorde. Another development which demonstrates how foreign competition is coming of age is the emergence on the foreign

scene of "families" of aircraft which have been such an important feature of the industry here in the United States. Our foreign competitors are coming up with the technology, the funding, and the "sense of the market" needed to enable them to make a most formidable showing in this field.

My statement to this point reflects the foundation which was succinctly identified by the CARD Study and around which the CARD Study and resulting recommendations were formulated. Dr. Cannon will discuss in more detail the CARD Study, its recommendations, and the status of the implementation plan. This plan will set forth the specific R&D actions to be taken by NASA and the DOT with respect to meeting future needs of civil aviation as identified in the CARD Study.

Before I close, however, I would like to point out that we have already taken action to assure that programs in the FAA and the Office of the Secretary are aimed at providing solutions to problems identified in the CARD Study. The actions address primarily the areas of congestion, both on the airside and landside, and noise. We are also looking into various aspects of low-density short-haul air service.

I have taken a deep personal interest in the CARD Study and I fully intend to continue my personal involvement in the development of the action to implement the CARD recommendations.

That concludes my prepared statement, Mr. Chairman, now I will be happy to answer any questions the Committee may have.